

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. through 167. (cancelled)

168. (cancelled).

169. (previously presented): A communication control method, comprising:
providing a vacant period, in which no communication data is present, in a data transmission from a base station to a mobile station;

inserting a first pilot signal, such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period;

inserting a second pilot, such that an end of the second pilot signal is contiguous with a beginning of a data transmission after the vacant period;

extracting at least one of the first and second pilot signals from the data transmission;
measuring a reception quality of the data transmission on the basis of the at least one extracted pilot signal;

generating a transmission power control signal, which controls transmission power of a signal from the base station to the mobile station, on the basis of the measured reception quality;
and

transmitting the transmission power control signal from the mobile station to the base station.

170. (previously presented): A communication control method, comprising:
transmitting a notification signal from a mobile station to a base station based on a detection of a degradation in link quality;
switching the base station from a normal transmission mode to a transmission mode having a vacant period based on the transmitted notification signal; and
after switching from the normal transmission mode to the transmission mode having a vacant period:

providing a vacant period, in which no communication data is present, in a data transmission from the base station to the mobile station;

inserting a first pilot signal, such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period; and

inserting a second pilot, such that an end of the second pilot signal is contiguous with a beginning of a data transmission after the vacant period.

171. (cancelled).

172. (previously presented): A communication control method, comprising:
providing a vacant period, in which no communication data is present, in a data transmission from a base station to a mobile station;

inserting a pilot signal, such that an end of the pilot signal is contiguous with a beginning of a data transmission after the vacant period;

extracting the pilot signal from the data transmission;

measuring a reception quality of the data transmission on the basis of the extracted pilot signal;

generating a transmission power control signal, which controls transmission power of a signal from the base station to the mobile station, on the basis of the measured reception quality; and

transmitting the transmission power control signal from the mobile station to the base station.

173. (previously presented): A communication control method, comprising:

transmitting a notification signal from a mobile station to a base station based on a detection of a degradation in link quality;

switching the base station from a normal transmission mode to a transmission mode having a vacant period based on the transmitted notification signal; and

after switching from the normal transmission mode to the transmission mode having a vacant period:

providing a vacant period, in which no communication data is present, in a data transmission from the base station to the mobile station and

inserting a pilot signal, such that an end of the pilot signal is contiguous with a beginning of a data transmission after the vacant period.

174. (cancelled).

175. (previously presented): A communication control system, comprising:

a base station, comprising:

a circuit which provides a vacant period, in which no communication data is present, in a data transmission from the base station to a mobile station and

a second circuit which provides a first pilot signal, such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period, and which inserts a second pilot signal, such that an end of the second pilot signal is contiguous with a beginning of a data transmission after the vacant period; and
the mobile station, comprising:

a transmission and reception circuit which receives the data transmission from the base station,

a pilot signal extracting portion which extracts at least one of the first and second pilot signals from the received data transmission,

an SIR measuring portion which measures a reception quality of the received data transmission, on the basis of the at least one extracted pilot signal, and

a transmission power control signal generating portion which generates a transmission power control signal, to be transmitted from the mobile station to the base station, on the basis of the measured reception quality;

wherein the transmission power control signal controls transmission power of a signal from the base station to the mobile station.

176. (previously presented): A communication control system, comprising:

a base station, comprising:

a transmission and reception circuit which receives a notification from a mobile station to enter a transmission mode including a vacant period;

a circuit which provides a vacant period, in which no communication data is present, in a data transmission from the base station to a mobile station, upon the receipt of the notification from the mobile station; and

a second circuit which provides a first pilot signal, such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period, and which inserts a second pilot signal, such that an end of the second pilot signal is contiguous with a beginning of a data transmission after the vacant period.

177. (cancelled).

178. (previously presented): A communication control system, comprising:

a base station, comprising:

a circuit which provides a vacant period, in which no communication data is present, in a data transmission from the base station to a mobile station and

a control signal inserting portion which inserts a pilot signal, such that an end of the pilot signal is contiguous with a beginning of a data transmission after the vacant period; and

a mobile station, comprising:

a transmission and reception circuit which receives the data transmission from the base station,

a pilot signal extracting portion which extracts the pilot signal from the received data transmission,

an SIR measuring portion which measures a reception quality of the received data transmission on the basis of the pilot signal, and

a transmission power control signal generating portion which generates a transmission power control signal, to be transmitted from the mobile station to the base station, on the basis of the measured reception quality;

wherein the transmission power control signal controls transmission power of a signal from the base station to the mobile station.

179. (previously presented): A communication control system, comprising:

a base station, comprising:

a transmission and reception circuit which receives a notification from a mobile station to enter a transmission mode including a vacant period;

a circuit which provides a vacant period, in which no communication data is present, in a data transmission from the base station to a mobile station, upon the receipt of the notification from the mobile station; and

a control signal inserting portion which inserts a pilot signal, such that an end of the pilot signal is contiguous with a beginning of a data transmission after the vacant period.

180. (previously presented): A mobile station in a mobile communication system, comprising:

a transmission and reception circuit which receives a data transmission from a base station;

wherein the data transmission includes:

a vacant period in which no data communication is present,

a first pilot signal inserted such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period, and

a second pilot signal, such that an end of the second pilot signal is ,
contiguous with a beginning of a data transmission after the vacant period,

a pilot signal extracting portion which extracts at least one of the first and second pilot signals from the received data transmission;

an SIR measuring portion which measures a reception quality of the received data transmission on the basis of the at least one extracted pilot signal; and

a transmission power control signal generating portion which generates a transmission power control signal to be transmitted to the base station, on the basis of the measured reception quality.

181. (previously presented): A mobile station in a mobile communication system, comprising:

a transmission and reception circuit which receives a data transmission from a base station;

wherein the data transmission includes:

a vacant period in which no data communication is present, and

a pilot signal, such that an end of the pilot signal is contiguous with a beginning of a data transmission after the vacant period,

a pilot signal extracting portion which extracts the pilot signal from the received data transmission;

an SIR measuring portion which measures a reception quality of the received data transmission on the basis of the extracted pilot signal; and

a transmission power control signal generating portion which generates a transmission power control signal to be transmitted to the base station, on the basis of the measured reception quality.

182. (previously presented): A control method of a mobile station in a mobile communication system, comprising:

receiving a data transmission from a base station, wherein the data transmission includes:

a vacant period in which no data communication is present,

a first pilot signal inserted, such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period, and

a second pilot signal, such that an end of the second pilot signal is contiguous with a beginning of a data transmission after the vacant period;

extracting at least one of the first and second pilot signals from the received data transmission;

measuring a reception quality of the received data transmission on the basis of the at least one extracted pilot signal;

generating a transmission power control signal on the basis of the measured reception quality; and

transmitting the generated transmission power control signal to the base station.

183. (previously presented): A control method of a mobile station in a mobile communication system, comprising:

detecting a degradation of link quality;

upon the detection of a degradation in link quality, transmitting a notification signal to a base station to switch from a normal transmission mode to a transmission mode having a vacant period; and

after transmitting the notification signal to the base station:

receiving a data transmission from the base station, wherein the data transmission includes:

a vacant period in which no data communication is present,

a first pilot signal inserted, such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period, and

a second pilot signal, such that an end of the second pilot signal is contiguous with a beginning of a data transmission after the vacant period;

extracting at least one of the first and second pilot signals from the received data transmission;

measuring a reception quality of the received data transmission on the basis of the at least one extracted pilot signal;

generating a transmission power control signal on the basis of the measured reception quality; and

transmitting the generated transmission power control signal to the base station.

184. (previously presented): A communication control method of a mobile station in a mobile communication system, comprising:

receiving a data transmission from a base station, wherein the data transmission includes:

a vacant period in which no data communication is present and

a pilot signal, such that an end of the pilot signal is contiguous with a beginning of a data transmission after the vacant period;

extracting the pilot signal from the received data transmission;
measuring a reception quality of the received data transmission on the basis of the
extracted pilot signal;
generating a transmission power control signal on the basis of the measured reception
quality; and
transmitting the generated transmission power control signal to the base station.

185. (previously presented): A communication control method of a mobile station in a
mobile communication system, comprising:

detecting a degradation of link quality;
upon the detection of a degradation in link quality, transmitting a notification signal to a
base station to switch from a normal transmission mode to a transmission mode having a vacant
period; and

after transmitting the notification signal,

receiving a data transmission from the base station, wherein the data transmission
includes:

a vacant period in which no data communication is present and
a pilot signal, such that an end of the pilot signal is contiguous with a
beginning of a data transmission after the vacant period;
extracting the pilot signal from the received data transmission;
measuring a reception quality of the received data transmission on the basis of the
extracted pilot signal;

generating a transmission power control signal on the basis of the measured reception quality; and
transmitting the generated transmission power control signal to the base station.

186. (cancelled).

187. (previously presented): A communication control system, comprising:
a base station, comprising:

means for providing a vacant period, in which no communication data is present, in a data transmission from the base station to a mobile station and

means for providing a first pilot signal, such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period, and for inserting a second pilot signal, such that an end of the second pilot signal is contiguous with a beginning of a data transmission after the vacant period; and

a mobile station, comprising:

means for receiving the data transmission from the base station;

means for extracting at least one of the first and second pilot signals from the received data transmission;

means for measuring a reception quality of the received data transmission, on the basis of the at least one extracted pilot signal; and

means for generating and transmitting a transmission power control signal from the mobile station to the base station, on the basis of the measured reception quality;

wherein the transmission power control signal controls transmission power of a signal from the base station to the mobile station.

188. (previously presented): A communication control system, comprising:

a base station, comprising:

means for receiving a notification from a mobile station to enter a transmission mode including a vacant period;

means for providing a vacant period, in which no communication data is present, in a data transmission from the base station to a mobile station, upon the receipt of the notification from the mobile station; and

means for providing a first pilot signal, such that a beginning of the first pilot signal is contiguous with an end of a data transmission prior to the vacant period, and for inserting a second pilot signal, such that an end of the second pilot signal is contiguous with a beginning of a data transmission after the vacant period.

189. (cancelled).

190. (previously presented): A communication control system, comprising:

a base station, comprising:

means for providing a vacant period, in which no communication data is present, in a data transmission from the base station to a mobile station and

means for inserting a pilot signal, such that an end of the pilot signal is contiguous with a beginning of a data transmission after the vacant period; and

a mobile station, comprising:

means for receiving the data transmission from the base station;

means for extracting the pilot signal from the received data transmission;

means for measuring a reception quality of the received data transmission on the basis of the extracted pilot signal; and

means for generating and transmitting a transmission power control signal from the mobile station to the base station, on the basis of the measured reception quality;

wherein the transmission power control signal controls transmission power of a signal from the base station to the mobile station.

191. (previously presented): A communication control system, comprising:

a base station, comprising:

means for receiving a notification from a mobile station to enter a transmission mode including the vacant period,

means for providing a vacant period, in which no communication data is present, in a data transmission from the base station to a mobile station, upon the receipt of the notification from the mobile station; and

means for inserting a pilot signal, such that an end of the pilot signal is contiguous with a beginning of a data transmission after the vacant period.

192. (previously presented): A mobile station in a mobile communication system,
comprising:

means for receiving a data transmission from a base station,

wherein the data transmission includes

a vacant period in which no data communication is present,

a first pilot signal inserted, such that a beginning of the first pilot signal is
contiguous with an end of a data transmission prior to the vacant period, and

a second pilot signal inserted, such that an end of the second pilot signal is
contiguous with a beginning of a data transmission after the vacant period;

means for extracting at least one of the first and second pilot signals from the received
data transmission;

means for measuring a reception quality of the received data transmission on the basis of
the at least one extracted pilot signal; and

means for generating and transmitting a transmission power control signal to the base
station, on the basis of the measured reception quality.

193. (previously presented): A mobile station in a mobile communication system,
comprising:

means for receiving a data transmission from a base station,

wherein the data transmission includes

a vacant period in which no data communication is present and

a pilot signal inserted, such that an end of the pilot signal is contiguous
with a beginning of a data transmission after the vacant period;
means for extracting the pilot signal from the received data transmission;
means for measuring a reception quality of the received data transmission on the basis of
the extracted pilot signal; and
means for generating and transmitting a transmission power control signal to the base
station, on the basis of the measured reception quality.

194. (previously presented): The mobile station according to claim 180, further
comprising a circuit which performs inter-frequency measurement during the vacant period.

195. (previously presented): The mobile station according to claim 181, further
comprising a circuit which performs inter-frequency measurement during the vacant period.

196. (previously presented): The control method of a mobile station according to claim
182, further comprising:
performing inter-frequency measurement during the vacant period.

197. (previously presented): The control method of a mobile station according to claim
184, further comprising:
performing inter-frequency measurement during the vacant period.

198. (previously presented): The mobile station according to claim 192 further comprising means for performing inter-frequency measurement during the vacant period.

199. (previously presented): The mobile station according to claim 193 further comprising means for performing inter-frequency measurement during the vacant period.

200. (cancelled).

201. (cancelled).

202. (previously presented): The mobile station according to claim 181, wherein the data transmission further includes a second pilot signal present within a data transmission prior to the vacant period, such that an end of the second pilot signal is contiguous with a beginning of the vacant period.

203. (previously presented): The control method of a mobile station according to claim 184, wherein the data transmission further includes a second pilot signal present within a data transmission prior to the vacant period, such that an end of the second pilot signal is contiguous with a beginning of the vacant period.

204. (cancelled).

205. (previously presented): The mobile station according to claim 193 wherein the data transmission further includes a second pilot signal present within a data transmission prior to the vacant period, such that an end of the second pilot signal is contiguous with a beginning of the vacant period.

206. (cancelled).

207. (cancelled).